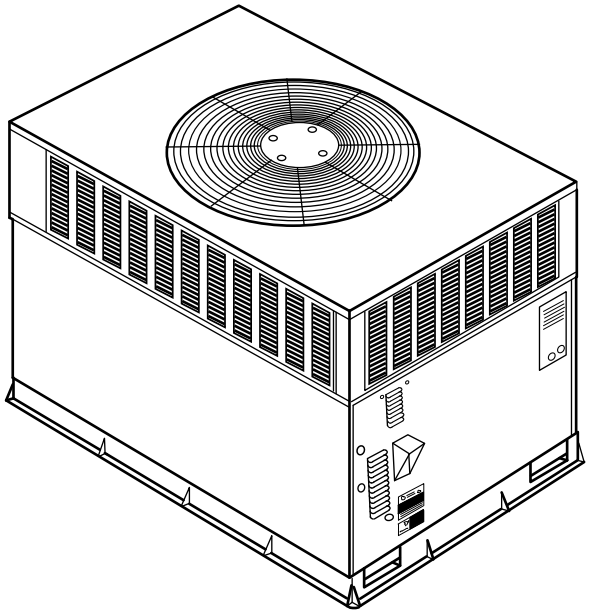
bryant
Heating & Cooling Systems

SINGLE-PACKAGE GAS HEATING/ELECTRIC COOLING UNITS

Model 583B
Sizes 024-060
2 to 5 Nominal Tons
Low NOx Models Available



UNIT 583B

Single-Package Rooftop Products with Energy-Saving Features and Puron® refrigerant.

- Direct Spark Ignition
- Low Sound Levels
- Up to 81% AFUE
- 12 SEER

AVAILABLE OPTIONS

One-piece heating and cooling units with low sound levels, easy installation, low maintenance, and dependable performance.

Puron® Environmentally Sound Refrigerant is Bryant's unique refrigerant designed to help protect the environment. Puron is an HFC refrigerant which does not contain chlorine that can harm the ozone layer. The most important advantage of Puron refrigerant is that it has not been banned in future air conditioning systems as the traditional refrigerant R-22 has been. Puron refrigerant is in service in thousands of systems proving highly reliable, environmentally sound performance.

EASY INSTALLATION—Factory-assembled package is a compact, fully self-contained, combination gas heating/electric cooling unit that is pre-wired, pre-piped, and pre-charged for minimum installation expense.

These units are available in a variety of standard and optional heating/cooling size combinations with voltage options to meet residential and light commercial requirements. Units are lightweight and install easily on a rooftop or at ground level. The high tech composite basepan eliminates rust problems associated with ground level applications.

CONVERTIBLE DUCT CONFIGURATION—Unit is designed for easy use in either downflow or horizontal applications. Each unit is easily converted from horizontal to downflow with addition of two duct covers.

EFFICIENT OPERATION

High-efficiency design offers SEER (Seasonal Energy Efficiency Ratios) of 12.0 and AFUE (Annual Fuel Utilization Efficiency) ratings as high as 81%.

Energy-saving, direct spark ignition saves gas by operating only when the room thermostat calls for heating. Standard units are furnished with natural gas controls. A low-cost field-installed kit for propane conversion is available for all units.

583B units with an "N" in the thirteenth position of model # are dedicated Low NOx units designed for California installations. These models meet the California maximum oxides of nitrogen (NOx) emissions requirement of 40 nanograms/joule or less as shipped from the factory and MUST be installed in California Air Quality Management Districts where a Low NOx rule exists.

DURABLE, DEPENDABLE COMPONENTS

Compressors are designed for high efficiency. Each compressor is hermetically sealed against contamination to help promote longer life and dependable operation. Each compressor also has vibration isolation to provide quieter operation. All compressors have internal high pressure and overcurrent protection.

Monoport inshot burners produce precise air-to-gas mixture, which provides for clean and efficient combustion. The large monoport on the inshot (or injection type) burners seldom, if ever, requires cleaning. All gas furnace components are accessible in one compartment.

Turbo-tubular™ heat exchangers are constructed of aluminized steel for corrosion resistance and optimum heat transfer for improved efficiency. The tubular design permits hot gases to make multiple passes across the path of the supply air.

In addition, dimples located on the heat exchanger walls force the hot gases to stay in close contact with the walls, improving heat transfer.

Direct-drive multi-speed, PSC (permanent split capacitor) blower motor is standard on all 583B models.

Direct-drive, PSC condenser-fan motors are designed to help reduce energy consumption and provide for cooling operation down to 40°F outdoor temperature. Motormaster® II low ambient kit is available as a field-installed accessory.

Corporate thermostats include the Time Guard® II anti-short cycle protection circuitry. If an Original Equipment Manufacture (OEM) thermostat is used the Time Guard II field installed anti-short cycle kit must be used.

Refrigerant system is designed to provide dependability. Liquid filter dryers are used to promote clean, unrestricted operation. Each unit leaves the factory with a full refrigerant charge. Refrigerant service connections make checking operating pressures easier.

HIGH AND LOW PRESSURE SWITCHES

Evaporator and condenser coils are computer-designed for optimum heat transfer and cooling efficiency. The evaporator coil is fabricated from copper tube and aluminum fins and is located inside the unit for protection against damage. The condenser coil is internally mounted on the top tier of the unit. Copper fin coils and pre-coated fin coils are available from the factory by special order. These coils are recommended in applications where aluminum fins are likely to be damaged due to corrosion. They are ideal for seacoast applications.

Low sound ratings ensure a quiet indoor and outdoor environment with sound ratings as low as 7.2 bels. (See page 3.)

Easy to service cabinets provide easy single-panel accessibility to serviceable components during maintenance and installation. The basepan with integrated drain pan provides easy ground level installation with or without a mounting pad. Convenient handholds are provided to manipulate the unit on the jobsite. A nesting feature ensures a positive basepan to roof curb seal when the unit is roof mounted. A convenient 3/4-in. wide perimeter flange makes frame mounting on a rooftop easy.

Downflow operation is easily provided in the field to allow vertical ductwork connections. The basepan utilizes knockout style seals on the bottom openings to ensure a positive seal in the horizontal airflow mode.

Integrated Gas Control (IGC) board provides safe and efficient control of heating and simplifies trouble-shooting through its built-in diagnostic function.

Cabinets are constructed of heavy-duty, phosphated, zinc-coated prepainted steel capable of withstanding 500 hours in salt spray. Interior surfaces of the evaporator/heat exchanger compartment are insulated with cleanable semi-rigid insulation board, which keeps the conditioned air from being affected by the outdoor ambient temperature and provides improved indoor air quality. (Conforms to American Society of Heating, Refrigeration and Air Conditioning Engineers No. 62P.) The sloped drain pan minimizes standing water in the drain, which is provided with an external drain.

Louvered Grille provides hail and vandalism protection.

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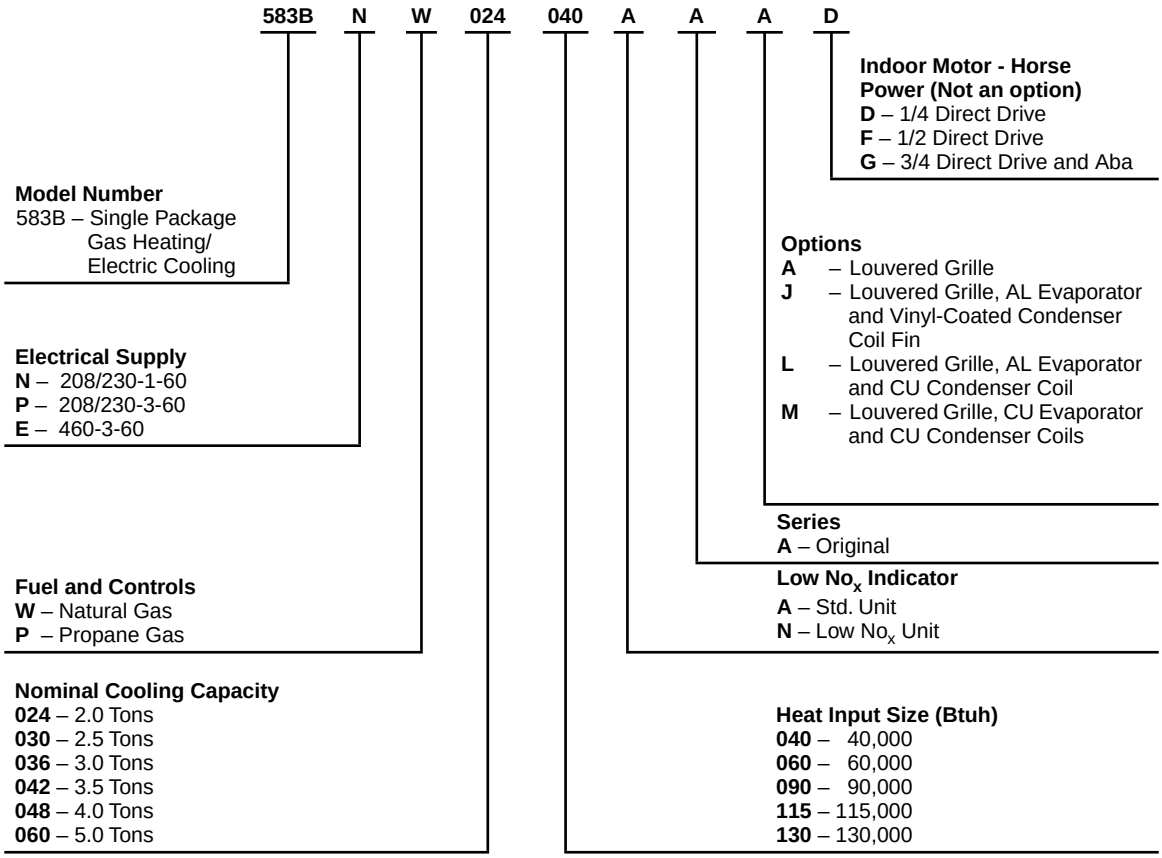
MODEL NUMBER NOMENCLATURE


583B N W 024 040 A A A D
Indoor Motor - Horse Power (Not an option)
D – 1/4 Direct Drive
F – 1/2 Direct Drive
G – 3/4 Direct Drive and Aba
Model Number
583B – Single Package Gas Heating/ Electric Cooling
Options
A – Louvered Grille
J – Louvered Grille, AL Evaporator and Vinyl-Coated Condenser Coil Fin
L – Louvered Grille, AL Evaporator and CU Condenser Coil
M – Louvered Grille, CU Evaporator and CU Condenser Coils
Electrical Supply
N – 208/230-1-60
P – 208/230-3-60
E – 460-3-60
Series
A – Original
Low Nox Indicator
A – Std. Unit
N – Low Nox Unit
Fuel and Controls
W – Natural Gas
P – Propane Gas
Nominal Cooling Capacity
024 – 2.0 Tons
030 – 2.5 Tons
036 – 3.0 Tons
042 – 3.5 Tons
048 – 4.0 Tons
060 – 5.0 Tons
Heat Input Size (Btuh)
040 – 40,000
060 – 60,000
090 – 90,000
115 – 115,000
130 – 130,000

LEGEND
CU — Copper
AL — Aluminum

ARI* CAPACITIES
COOLING CAPACITIES AND EFFICIENCIES

UNIT 583B	NOMINAL TONS	STANDARD CFM	NET COOLING CAPACITIES (Btuh)	SEER†	SOUND RATINGS** (dB)
024040 **024060**	2	800	24,000	12.0	7.2
030040 **036060**	2-1/2	1000	29,000	12.0	7.2
036060 **036090**	3	1200	35,000	12.0	7.2
042060 **042090**	3-1/2	1400	41,000	12.0	7.3
048090 **048115** **048130**	4	1600	48,000	12.0	7.8
060090 **060115** **060130**	5	1750	59,000	12.0	7.6

LEGEND
dB — Decibels
db — Dry Bulb
SEER — Seasonal Energy Efficiency Ratio
wb — Wet Bulb
* Air Conditioning & Refrigeration Institute.
† Rated in accordance with U.S. Government DOE (Department of Energy) test procedures and/or ARI Standard 210/240-89.
** Tested in accordance with ARI Standard 270-95 (not listed in ARI).

NOTES:
1. Ratings are net values, reflecting the effects of circulating fan heat. Ratings are based on:
   Cooling Standard: 80°F db, 67°F wb indoor entering-air temperature and 95°F db outdoor entering-air temperature.
2. Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

ARI* CAPACITIES (cont)
HEATING CAPACITIES AND EFFICIENCIES

UNIT 583B	HEATING INPUT (Btuh)	OUTPUT CAPACITY (Btuh)	TEMPERATURE RISE RANGE (°F)	AFUE
024040 **030040**	40,000	31,000	20-50	80.1
024060 **030060** **036060** **042060**	60,000	46,000 46,000 46,000 47,000	35-65 35-65 25-55 20-50	78.4 78.4 78.7 78.7
036090 **042090** **048090** **060090**	88,000 90,000 90,000 90,000	70,000 71,000 70,000 70,000	45-75 35-65 25-55 25-55	79.9 79.9 78.6 78.6
048115 **060115**	115,000	92,000	35-65	81.1
048130 **060130**	130,000	104,000 103,000	40-70	80.3

LEGEND

AFUE — Annual Fuel Utilization Efficiency

NOTE: Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

PHYSICAL DATA

UNIT SIZE 583B	024040	024060	030040	030060	036060	036090	042060	042090
NOMINAL CAPACITY (ton)	2	2	2-1/2	2-1/2	3	3	3-1/2	3-1/2
OPERATING WEIGHT (lb)	290	290	313	313	321	321	382	382
COMPRESSORS	Scroll							
Quantity	1							
REFRIGERANT (R-410A)								
Quantity (lb)	5.0	5.0	5.5	5.5	6.9	6.9	9.0	9.0
REFRIGERANT METERING DEVICE								
Orifice ID (in.) AccuRater® Piston	.057	.057	.057	.057	.065	.065	.070	.070
CONDENSER COIL								
Rows—Fins/in. Face Area (sq ft)	1/17 10.9	1/17 10.9	1/17 12.7	1/17 12.7	2/17 9.1	2/17 9.1	2/17 12.3	2/17 12.3
CONDENSER FAN								
Nominal Cfm Diameter (in.) Motor Hp (Rpm)	2350 22 1/8 (825)	2350 22 1/8 (825)	2350 22 1/8 (825)	2350 22 1/8 (825)	2350 22 1/8 (825)	2350 22 1/8 (825)	2350 22 1/8 (825)	2350 22 1/8 (825)
EVAPORATOR COIL								
Rows—fins/in. Face Area (sq ft)	3/15 3.7	3/15 3.7	3/15 3.7	3/15 3.7	3/15 3.7	3/15 3.7	3/15 4.7	3/15 4.7
EVAPORATOR BLOWER								
Nominal Airflow (Cfm) Size (in.) Motor (Hp)	800 10 x 10 1/4	800 10 x 10 1/4	800 10 x 10 1/4	1000 10 x 10 1/4	1200 10 x 10 1/2	1200 10 x 10 1/2	1400 11 x 10 3/4	1400 11 x 10 3/4
FURNACE SECTION								
Burner Orifice No. (Qty…Drill Size) Natural Burner Orifice No. (Qty…Drill Size) Propane	2…44 2…50	2…38 2…46	2…44 2…50	2…38 2…46	2…38 2…46	3…38 3…46	2…38 2…46	3…38 3…46
HIGH-PRESSURE SWITCH (psig)								
Cutout Reset (Auto.)	610 ± 15 420 ± 25							
LOSS-OF-CHARGE/LOW-PRESSURE SWITCH								
(Liquid Line) (psig) Cutout Reset (Auto.)	20 ± 5 45 ± 10							
RETURN-AIR FILTERS (in.)								
Throwaway	20 x 24 x 1	20 x 24 x 1	20 x 24 x 1	20 x 24 x 1	20 x 24 x 1	20 x 24 x 1	24 x 30 x 1	24 x 30 x 1

PHYSICAL DATA (cont)

UNIT SIZE 583B	048090	048115	048130	060090	060115	060130
NOMINAL CAPACITY (ton)	4	4	4	5	5	5
OPERATING WEIGHT (lb)	421	421	421	468	468	468
COMPRESSORS	Scroll					
Quantity	1					
REFRIGERANT (R-410A)						
Quantity (lb)	9.5	9.5	9.5	10.0	10.0	10.0
REFRIGERANT METERING DEVICE						
Orifice ID (in.) AccuRater® Piston	.073	.073	.073	.086	.086	.086
CONDENSER COIL						
Rows—Fins/in. Face Area (sq ft)	2/17 12.3	2/17 12.3	2/17 12.3	2/17 16.4	2/17 16.4	2/17 16.4
CONDENSER FAN						
Nominal Cfm Diameter (in.) Motor Hp (Rpm)	3300 22 1/4 (1100)	3300 22 1/4 (1100)	3300 22 1/4 (1100)	3300 22 1/4 (1100)	3300 22 1/4 (1100)	3300 22 1/4 (1100)
EVAPORATOR COIL						
Rows—fins/in. Face Area (sq ft)	4/15 4.7	4/15 4.7	4/15 4.7	4/15 4.7	4/15 4.7	4/15 4.7
EVAPORATOR BLOWER						
Nominal Airflow (Cfm) Size (in.) Motor (Hp)	1600 11 x 10 3/4	1600 11 x 10 3/4	1600 11 x 10 3/4	1750 11 x 10 1.0	1750 11 x 10 1.0	1750 11 x 10 1.0
FURNACE SECTION						
Burner Orifice No. (Qty…Drill Size) Natural Gas	3…38	3…33	3…31	3…38	3…33	3…31
Burner Orifice No. (Qty…Drill Size) Propane Gas	3…46	3…42	3…41	3…46	3…42	3…41
HIGH-PRESSURE SWITCH (psig)						
Cutout Reset (Auto.)	610 ± 15 420 ± 25					
LOSS-OF-CHARGE/LOW-PRESSURE SWITCH						
(Liquid Line) (psig) Cutout Reset (Auto.)	20 ± 5 45 ± 10					
RETURN-AIR FILTERS (in.)						
Throwaway	24 x 30 x 1	24 x 30 x 1	24 x 30 x 1	24 x 30 x 1	24 x 30 x 1	24 x 30 x 1

OPTIONS AND ACCESSORIES

Factory-installed options

Coil options include copper/copper and vinyl-coated construction for refrigerant coils. Units are shipped standard with copper tube/aluminum fin construction. See model number nomenclature for coil options.

Field-installed accessories

Economizer with Solid-State Controls and Barometric Relief Dampers
Manual Air Damper (25% open)
Filter Rack
Roof Curbs (8-in. and 14-in.)
Square-to-Round Duct Transition Kit
Thermostats
Crankcase Heater
Compressor Hard Start Kit (for use on single-phase units only)
LP Conversion Kit
High Altitude Kit
Low Ambient Kit (Motormaster® II Control)
Solid-State Time Guard® II Device

Economizer with solid-state controls and barometric relief dampers includes filter racks and provide outdoor air during cooling and reduce compressor operation.

Manual outside air damper includes hood and filter rack with adjustable damper blade for up to 25% outdoor air.

Flat roof curbs in both 8 in. and 14 in. sizes are available for roof mounted applications.

Square-to-round duct transition kit enables 024-048 size units to be fitted to 14 in. round ductwork.

Compressor hard start kit assists compressor start-up by providing additional starting torque on single phase units and prolongs compressor motor life.

Duct conversion kit consists of 2 duct covers to be placed over the horizontal supply and return duct openings when the unit is converted for downshot applications.

Thermostats provide control for the system heating and cooling functions. Thermostat models are available in both programmable and non-programmable versions.

Crankcase heater provides anti-floodback protection for low-load cooling applications.

LP (liquid propane) conversion kit allows for conversion from natural gas to liquid propane fuel.

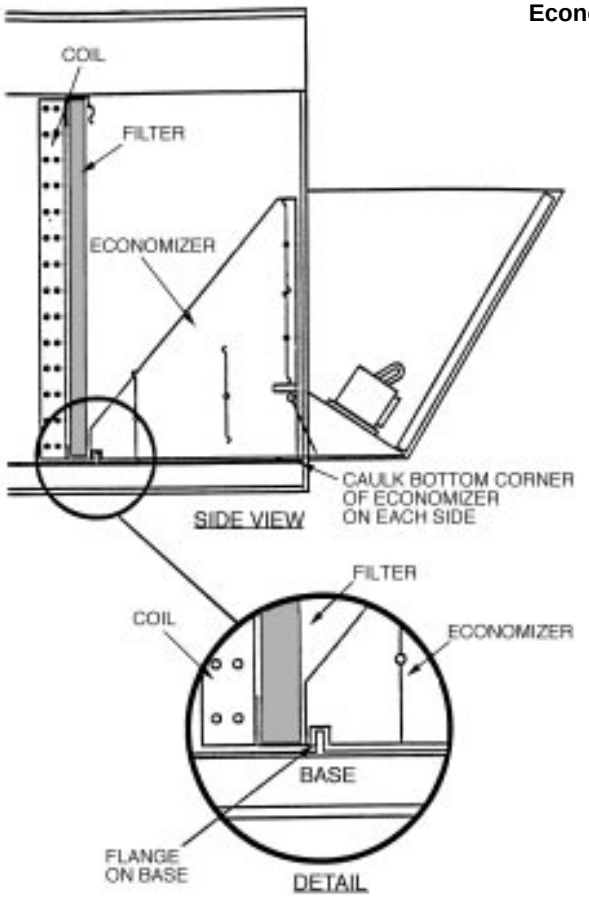
Low-ambient kit (Motormaster® II control) allows the use of mechanical cooling down to outdoor temperatures as low as 0°F.

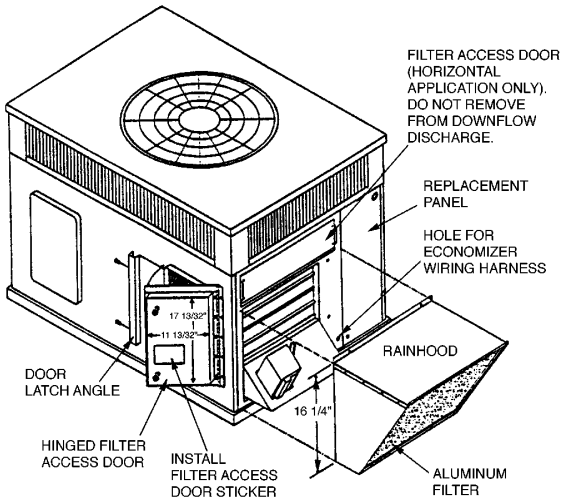
Solid-state Time Guard® II device provides short-cycling protection for the compressor. Not required with corporate electronic thermostats.

Filter rack features easy installation, serviceability, and high-filtering performance for vertical applications.

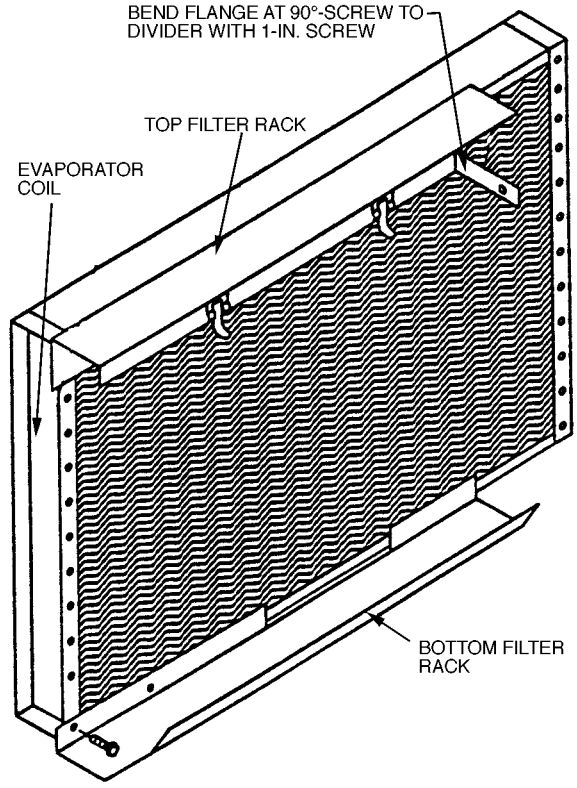
High altitude kit is for use at 2001 to 6000 ft above sea level. Kit consists of natural gas orifices that compensate for gas heat operation at high altitude.

Economiser

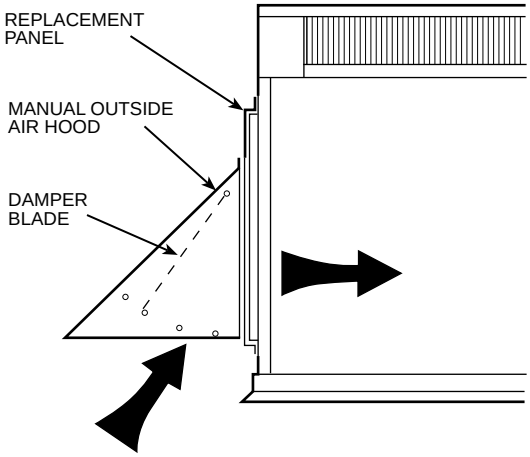




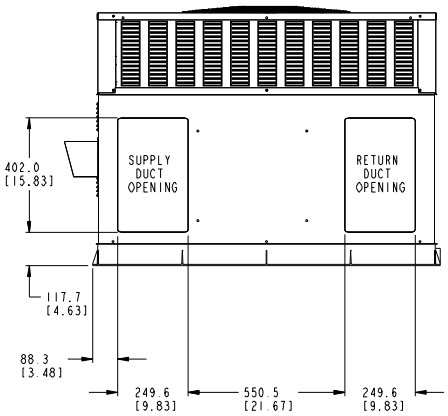
Filter Rack



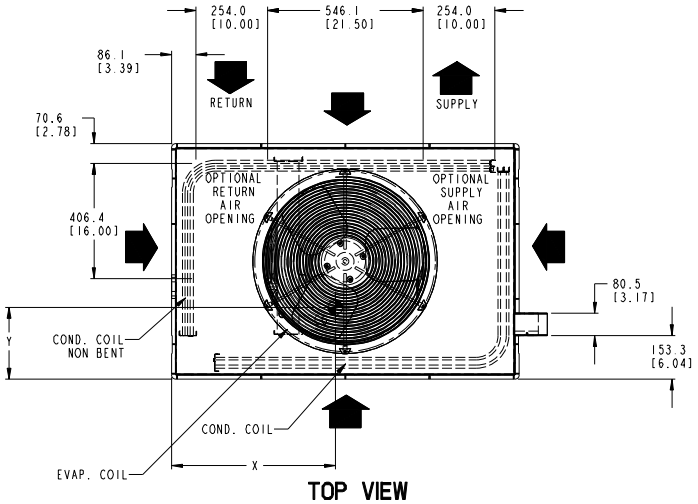
Manual Outside Air Damper



BASE UNIT DIMENSIONS — 583B024-036



REAR VIEW



TOP VIEW

REQ'D CLEARANCES FOR OPERATION AND SERVICING. in. (mm)

Evaporator coil access side	36 (914)
Power entry side (except for NEC requirements)	36 (914)
Unit top	48 (1219)
Side opposite ducts	36 (914)
Duct panel	12 (304.8)*

*Minimum distances: If unit is placed less than 12 in. (304.8 mm) from wall system, then the system performance may be compromised.

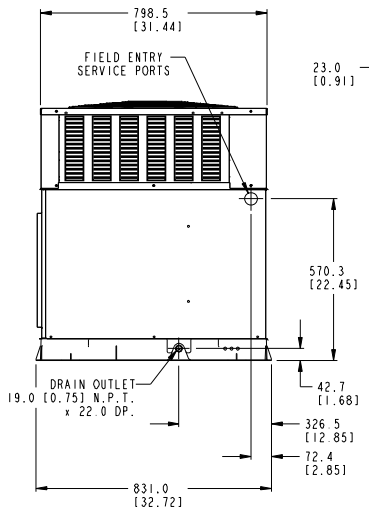
LEGEND
CG - Center of Gravity
COND - Condenser
EVAP - Evaporator
NEC - National Electrical Code
REQ'D - Required
Note: Dimensions are in in. (mm)

REQ'D CLEARANCES TO COMBUSTIBLE MAT'L. in. (mm)

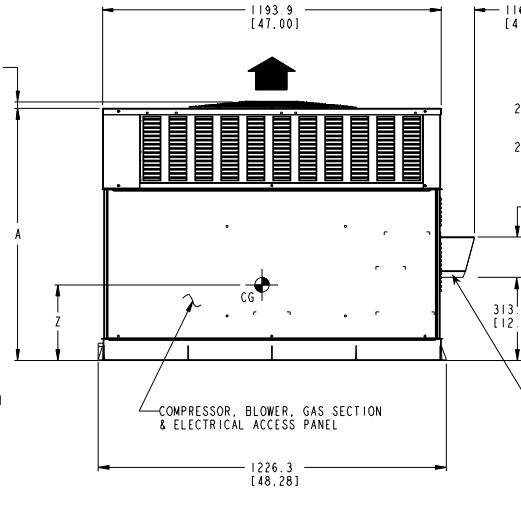
Top of unit	14 (355.6)
Duct side of unit	2 (50.8)
Side opposite ducts	14 (355.6)
Bottom of unit	0.50 (12.7)
Flue panel	36 (914.4)

NEC REQ'D CLEARANCES. in. (mm)

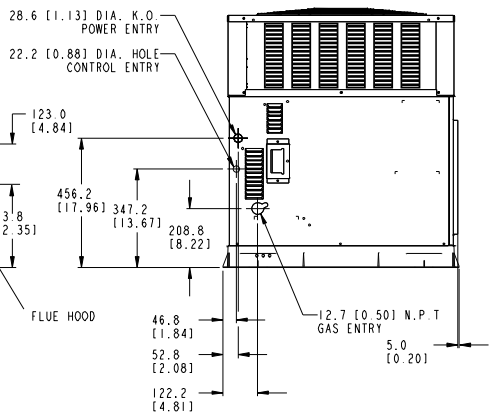
Between units, power entry side	42 (1066.8)
Unit and ungrounded surfaces, power entry side	36 (914)
Unit and block or concrete walls and other grounded surfaces, control box side	42 (1066.8)



LEFT SIDE VIEW



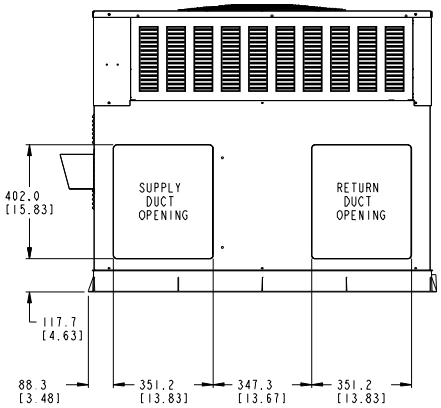
FRONT VIEW



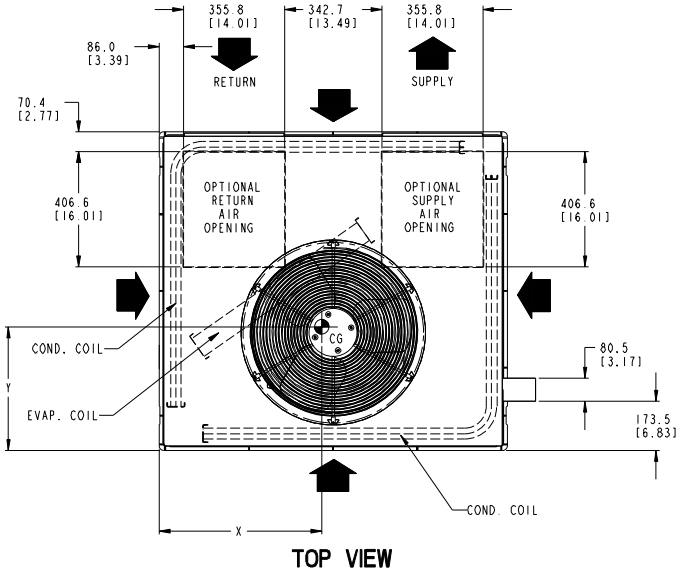
RIGHT SIDE VIEW

UNIT	ELECTRICAL CHARACTERISTICS	UNIT WEIGHT		UNIT HEIGHT IN. [MM] "A"	CENTER OF GRAVITY IN. [MM]		
		lb.	kg.		X	Y	Z
583B042060/090	208/230-1-60 208/230-3-60 460-3-60	382	173.3	38.98 [990.2]	23.0 [584.2]	16.3 [412.8]	16.6 [421.6]
583B048090/115/130	208/230-1-60 208/230-3-60 460-3-60	421	191.0	38.98 [990.2]	21.5 [546.1]	16.6 [422.1]	18.0 [457.2]
583B060090/115/130	208/230-1-60, 208/230-3-60, 460-3-60	468	212.3	42.98 [1091.7]	23.5 [596.9]	16.3 [412.8]	17.6 [447.0]

BASE UNIT DIMENSIONS – 583B042-060



REAR VIEW



TOP VIEW

REQUIRED CLEARANCE FOR OPERATION AND SERVICING

	in. [mm]
EVAP. COIL ACCESS SIDE	36.00 [914.0]
POWER ENTRY SIDE	36.00 [914.0]
(EXCEPT FOR NEC REQUIREMENTS)	
UNIT TOP	36.00 [914.0]
SIDE OPPOSITE DUCTS	36.00 [914.0]
DUCT PANEL	12.00 [304.8] *

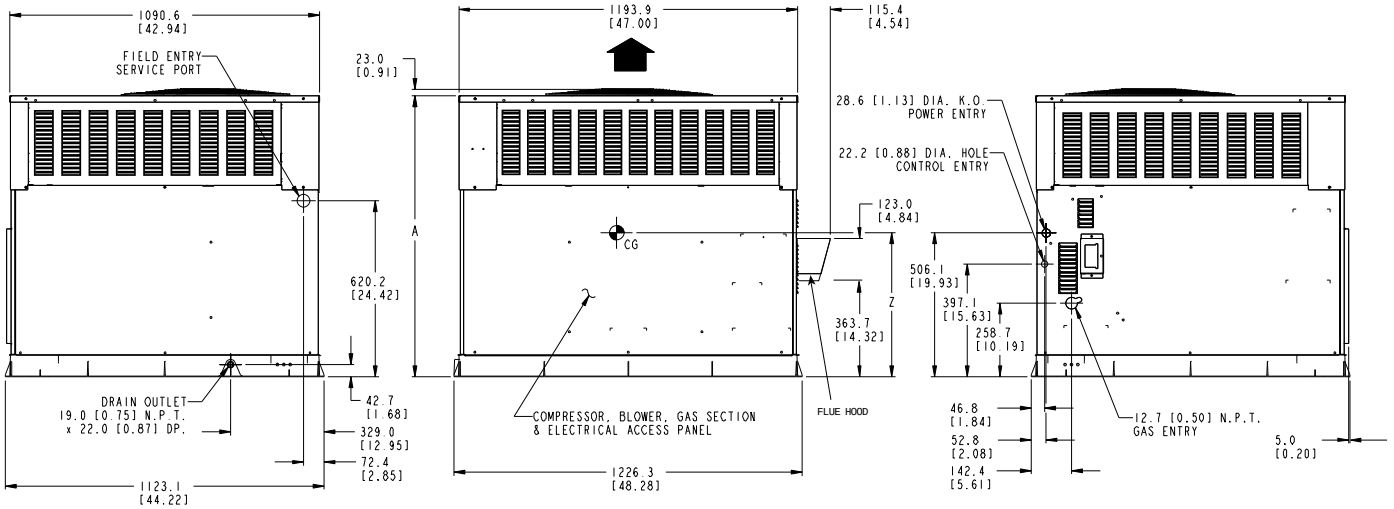
*MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 12.00 in. [304.8 mm.] FROM WALL THEN SYSTEM PERFORMANCE MAYBE COMPROMISED.

REQUIRED CLEARANCE TO COMBUSTIBLE MATL.

	in. [mm]
TOP OF UNIT	14.00 [355.6]
DUCT SIDE OF UNIT	2.00 [50.8]
SIDE OPPOSITE DUCTS	14.00 [355.6]
BOTTOM OF UNIT	0.50 [12.7]
ELECTRIC HEAT PANEL	36.00 [914.4]

NEC. REQUIRED CLEARANCES.

	MILLIMETERS [IN.]
BETWEEN UNITS, POWER ENTRY SIDE	42.00 [1066.8]
UNIT AND UNGROUNDED SURFACES, POWER ENTRY SIDE	36.00 [914.0]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE	42.00 [1066.8]



LEFT SIDE VIEW

FRONT VIEW

RIGHT SIDE VIEW

UNIT	ELECTRICAL CHARACTERISTICS	UNIT WEIGHT		UNIT HEIGHT IN. [MM] "A"	CENTER OF GRAVITY IN. [MM]		
		lb.	kg.		X	Y	Z
583B042060/090	208/230-1-60 208/230-3-60 460-3-60	382	173.3	38.98 [990.2]	23.0 [584.2]	16.3 [412.8]	16.6 [421.6]
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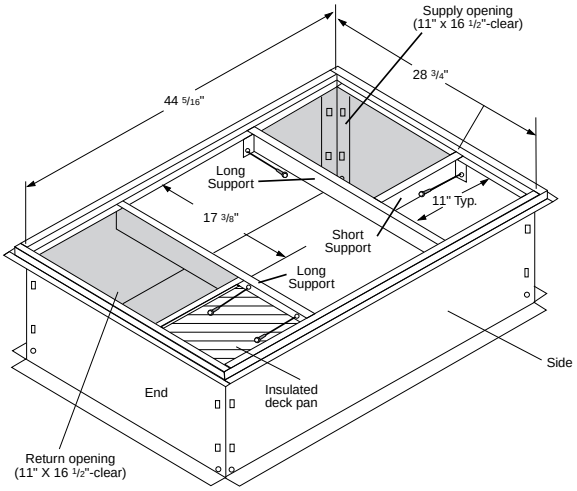
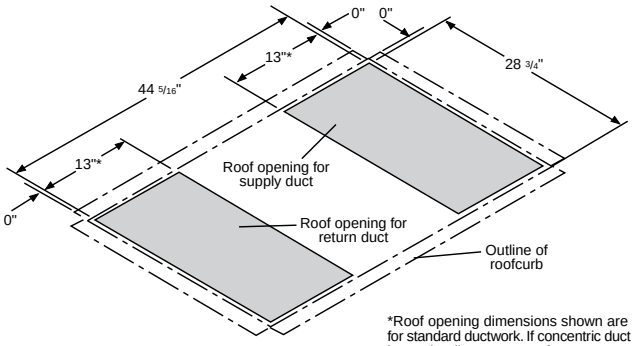
583B060090/115/130	208/230-1-60, 208/230-3-60, 460-3-60	468	212.3	42.98 [1091.7]	23.5 [596.9]	16.3 [412.8]	17.6 [447.0]

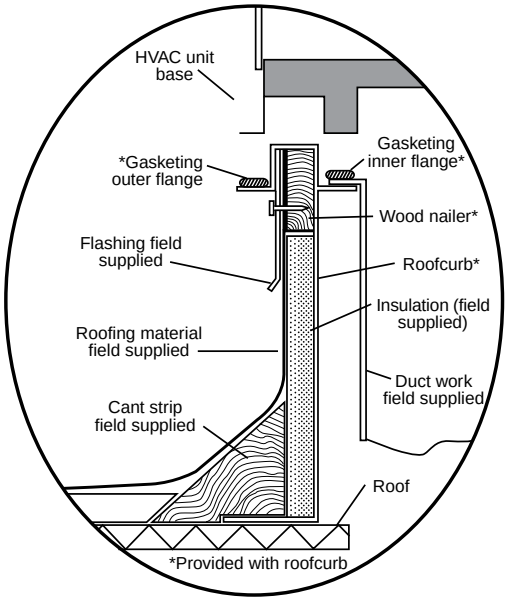
ACCESSORY DIMENSIONS



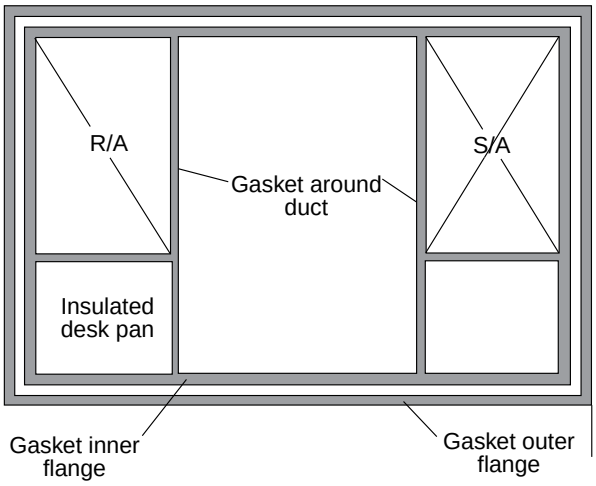


*Roof opening dimensions shown are for standard ductwork. If concentric duct is used, adjust per manufacturers instructions.

Roof Opening Detail



Flashing Detail



NOTES:
1. Roof curb must be setup for unit being installed.
2. Seal strip (gasket) must be applied as required.
3. Dimensions are in inches.
4. Attach ductwork to flanges of the curb.
5. R/A = Return Air & S/A = Supply Air

SELECTION PROCEDURE (WITH EXAMPLE)

I DETERMINE COOLING AND HEATING REQUIREMENTS AT DESIGN CONDITIONS:

Given:

Required Cooling Capacity (TC).....35,000 Btuh
Sensible Heat Capacity (SHC).....25,000 Btuh
Required Heating Capacity.....60,000 Btuh
Condenser Entering Air Temperature..... 95°F
Indoor-Air Temperature .....80°F edb 67°F ewb
Evaporator Air Quantity .....1200 CFM
External Static Pressure..... 0.1 in. wg
Electrical Characteristics.....208-1-60

II SELECT UNIT BASED ON REQUIRED COOLING CAPACITY.

Enter Net Cooling Capacities table at condenser entering temperature of 95 F. Unit 48GX036 at 1200 cfm and 67 F ewb (entering wet bulb) will provide a total capacity of 35,000 Btuh and a SHC of 25,200 Btuh. Calculate SHC correction, if required, using Note 4 under Cooling Capacities tables.

III SELECT HEATING CAPACITY OF UNIT TO PROVIDE DESIGN CONDITION REQUIREMENT.

In the Heating Capacities and Efficiencies table on page 4, note that the unit 48GX036090 will provide 71,910 Btuh with an input of 88,000 Btuh.

IV DETERMINE FAN SPEED AND POWER REQUIRE–MENTS AT DESIGN CONDITIONS.

Before entering the air delivery tables, calculate the total static pressure required. From the *given* example, the Wet Coil Pressure Drop Table, and the Filter Pressure Drop table on page 16, find at 1200 cfm:

External Static Pressure	0.1 in. wg
Wet Coil	0.1 in. wg
Filter	0.2 in. wg
Total Static Pressure	0.4 in. wg

Enter the table for Dry Coil Air Delivery — Horizontal and Downflow Discharge on page 15. For 208 v operation, deduct 10% from value given. At 0.4 ESP (external static pressure), the fan will deliver 1213 cfm at medium speed. The fan speed should be set at medium speed.

V SELECT UNIT THAT CORRESPONDS TO POWER SOURCE AVAILABLE.

The Electrical Data table on page 21 shows that the unit is designed to operate at 208-1-60.

PERFORMANCE DATA

COOLING CAPACITIES

583B024 COOLING PERFORMANCE TABLE										
Temp (F) Outdoor Air Entering Condenser		Evaporator Air — CFM / BF								
		600 / 0.08			800 / 0.10			1000 / 0.12		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
75	TC	26.8	29.4	31.7	28.4	30.9	32.8	29.5	31.6	33.5
	SHC	22.2	19.0	15.6	25.7	21.3	16.6	28.6	23.1	17.4
	kW	1.93	1.96	1.97	2.09	2.11	2.12	2.26	2.32	2.34
85	TC	25.4	28.2	30.6	27.1	29.6	31.7	28.2	30.5	32.2
	SHC	21.5	18.5	15.2	25.1	20.9	16.3	28.2	22.8	17.1
	kW	2.13	2.18	2.19	2.30	2.33	2.34	2.47	2.55	2.56
95	TC	24.0	26.8	29.6	25.6	28.4	30.6	26.9	29.2	31.0
	SHC	20.8	17.8	14.7	24.3	20.3	15.9	26.9	22.5	16.6
	kW	2.34	2.41	2.45	2.50	2.57	2.61	2.67	2.80	2.80
105	TC	21.7	24.4	26.9	23.1	25.8	27.8	24.6	26.5	28.3
	SHC	19.3	16.5	13.5	22.5	19.0	14.7	24.6	21.1	15.4
	kW	2.64	2.72	2.75	2.80	2.89	2.90	2.98	3.12	3.12
115	TC	19.2	21.9	24.6	20.9	23.2	25.8	22.6	24.0	26.2
	SHC	18.1	15.4	12.6	20.9	17.8	13.7	22.6	20.0	14.9
	kW	3.03	3.13	3.21	3.19	3.34	3.36	3.42	3.57	3.59
125	TC	16.7	19.1	21.8	18.6	20.2	22.7	20.1	21.0	23.2
	SHC	16.7	14.2	11.5	18.6	16.6	12.8	20.1	18.9	13.9
	kW	3.51	3.65	3.75	3.71	3.84	3.91	3.94	4.09	4.14

583B030 COOLING PERFORMANCE TABLE										
Temp (F) Outdoor Air Entering Condenser		Evaporator Air — CFM / BF								
		750 / 0.08			1000 / 0.11			1250 / 0.15		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
75	TC	29.5	32.8	34.9	31.4	34.0	35.7	32.8	34.6	36.2
	SHC	25.7	21.9	17.5	30.0	24.3	18.6	32.8	26.2	19.1
	kW	2.11	2.14	2.15	2.28	2.32	2.33	2.46	2.58	2.59
85	TC	28.1	31.3	33.8	29.8	32.9	34.5	31.4	33.5	35.3
	SHC	25.0	21.3	17.1	29.2	24.1	18.2	31.4	26.0	19.1
	kW	2.34	2.38	2.44	2.52	2.60	2.62	2.68	2.87	2.84
95	TC	26.4	30.0	32.5	28.5	31.2	33.4	30.1	31.9	33.9
	SHC	24.2	20.8	16.6	28.5	23.6	17.8	30.1	26.0	18.8
	kW	2.58	2.65	2.67	2.78	2.84	2.85	2.95	3.09	3.12
105	TC	23.8	26.8	29.6	25.6	28.1	30.5	27.5	28.9	31.0
	SHC	22.5	19.1	15.3	25.6	22.0	16.6	27.5	24.5	17.5
	kW	2.90	3.00	3.01	3.07	3.19	3.20	3.31	3.43	3.47
115	TC	22.0	25.0	27.5	24.0	26.0	28.6	25.7	26.7	28.7
	SHC	21.7	18.3	14.5	24.0	21.1	15.9	25.7	23.6	16.8
	kW	3.14	3.28	3.33	3.39	3.49	3.48	3.62	3.74	3.79
125	TC	20.1	22.7	25.2	22.3	23.7	25.9	23.8	24.3	26.5
	SHC	20.1	17.3	13.6	22.3	20.1	14.9	23.8	22.6	15.9
	kW	3.55	3.69	3.70	3.78	3.86	3.89	4.00	4.10	4.10

See Legend and Notes on page 15.

PERFORMANCE DATA (cont)

COOLING CAPACITIES (cont)

583B036 COOLING PERFORMANCE TABLE

Temp (F) Outdoor Air Entering Condenser		Evaporator Air — CFM/BF								
		900/0.09			1200/0.13			1500/0.18		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
75	TC	35.9	39.4	42.3	37.9	41.3	43.3	39.4	42.0	43.9
	SHC	30.9	26.0	21.1	35.3	29.1	22.3	39.4	31.1	22.8
	kW	2.58	2.61	2.61	2.79	2.84	2.83	3.03	3.14	3.14
85	TC	33.6	37.6	40.6	36.1	39.4	41.7	37.6	40.2	42.3
	SHC	29.2	25.3	20.4	34.6	28.5	21.8	37.6	30.8	22.4
	kW	2.83	2.88	2.89	3.05	3.11	3.12	3.28	3.43	3.43
95	TC	31.7	35.6	38.6	33.7	37.4	39.7	35.8	38.2	40.3
	SHC	28.5	24.5	19.7	32.0	27.8	21.0	35.8	30.0	21.8
	kW	3.11	3.19	3.20	3.33	3.42	3.43	3.56	3.74	3.73
105	TC	28.6	32.1	35.0	30.6	33.7	35.9	32.6	34.5	36.3
	SHC	26.6	22.7	18.1	29.5	25.9	19.3	32.6	28.5	20.0
	kW	3.49	3.59	3.60	3.73	3.82	3.82	3.97	4.15	4.13
115	TC	26.1	29.5	32.1	28.6	30.8	32.9	30.2	31.4	33.3
	SHC	25.3	21.4	16.9	28.6	24.5	18.2	30.2	27.1	18.9
	kW	3.85	3.96	3.96	4.07	4.19	4.19	4.34	4.46	4.51
125	TC	22.7	25.3	27.7	25.0	26.3	28.3	26.4	26.9	28.6
	SHC	22.7	19.6	15.2	25.0	22.6	16.6	26.4	25.0	17.1
	kW	4.48	4.59	4.61	4.71	4.79	4.84	4.98	5.09	5.15

583B042 COOLING PERFORMANCE TABLE

Temp (F) Outdoor Air Entering Condenser		Evaporator Air — CFM/BF								
		1050 / 0.10			1500 / 0.13			1750 / 0.17		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
75	TC	41.8	45.5	48.9	44.0	47.7	50.9	45.8	49.1	52.0
	SHC	36.0	30.1	23.9	41.5	33.7	25.5	45.8	36.9	26.7
	kW	2.93	2.97	2.99	3.20	3.27	3.30	3.48	3.70	3.72
85	TC	39.7	43.6	47.1	42.1	45.7	48.9	44.0	47.1	50.1
	SHC	35.0	29.3	23.2	40.6	33.1	24.9	44.0	36.3	26.2
	kW	3.26	3.31	3.35	3.53	3.62	3.66	3.76	4.04	4.07
95	TC	37.4	41.6	45.1	39.7	43.6	46.8	42.2	44.9	47.9
	SHC	33.9	28.5	22.5	39.7	32.3	24.2	42.2	35.7	25.5
	kW	3.60	3.70	3.73	3.87	4.01	4.03	4.15	4.43	4.45
105	TC	32.7	36.6	40.2	35.2	38.6	41.8	37.8	39.7	42.9
	SHC	31.0	25.9	20.4	35.2	29.9	22.3	37.8	33.4	23.8
	kW	4.26	4.42	4.46	4.50	4.75	4.78	4.91	5.17	5.21
115	TC	29.3	32.9	36.5	31.9	34.7	37.8	34.5	35.7	38.7
	SHC	29.3	24.3	19.0	31.9	28.4	21.0	34.5	31.8	22.4
	kW	4.92	5.10	5.18	5.06	5.47	5.49	5.63	5.84	5.94
125	TC	25.9	29.2	32.8	28.7	30.9	33.8	31.2	31.7	34.5
	SHC	27.3	22.5	17.6	28.7	26.6	19.5	31.2	29.8	20.9
	kW	5.62	5.84	5.97	5.66	6.24	6.26	6.41	6.57	6.73

See Legend and Notes on page 16.

PERFORMANCE DATA (cont)

COOLING CAPACITIES (cont)

583B048 COOLING PERFORMANCE TABLE											
Temp (F) Outdoor Air Entering Condenser		Evaporator Air — CFM/BF									
		1200 / 0.06			1600 / 0.08			2000 / 0.11			
		Evaporator Air — Ewb (F)									
		62	67	72	62	67	72	62	67	72	
75	TC	48.9	53.3	57.8	51.5	55.8	60.1	53.4	57.5	61.2	
	SHC	42.4	35.5	28.7	49.2	40.2	31.0	53.4	44.4	32.5	
	kW	3.38	3.43	3.48	3.68	3.78	3.82	4.01	4.23	4.27	
85	TC	46.7	51.2	55.7	49.4	53.7	58.2	51.7	55.2	59.5	
	SHC	41.2	34.8	27.9	48.3	39.4	30.4	51.7	43.7	32.2	
	kW	3.77	3.80	3.86	4.03	4.16	4.21	4.36	4.63	4.68	
95	TC	44.3	49.0	53.3	47.0	51.3	55.8	49.9	52.6	57.1	
	SHC	40.0	33.8	27.0	47.0	38.6	29.6	49.9	43.0	31.5	
	kW	4.15	4.23	4.28	4.41	4.57	4.63	4.78	5.07	5.11	
105	TC	40.1	44.7	48.8	43.1	46.6	50.9	45.7	47.8	52.4	
	SHC	37.3	31.5	25.1	43.1	36.2	27.5	45.7	40.5	29.5	
	kW	4.67	4.79	4.82	4.93	5.14	5.19	5.34	5.60	5.66	
115	TC	36.1	40.6	44.6	39.7	42.3	46.3	42.0	43.4	47.4	
	SHC	35.2	29.7	23.5	39.7	34.4	25.8	42.0	38.7	28.0	
	kW	5.32	5.50	5.54	5.65	5.85	5.89	6.06	6.27	6.36	
125	TC	32.7	36.2	39.6	35.9	37.4	41.2	37.7	38.4	42.2	
	SHC	32.7	27.7	21.5	35.9	32.4	23.9	37.7	36.4	26.1	
	kW	6.16	6.31	6.34	6.47	6.63	6.69	6.89	7.04	7.16	

583B060 COOLING PERFORMANCE TABLE													
Temp (F) Outdoor Air Entering Condenser		Evaporator Air — CFM/BF											
		1500 / 0.05			1750 / 0.06			2000 / 0.07			2500 / 0.08		
		Evaporator Air — Ewb (F)											
		62	67	72	62	67	72	62	67	72	62	67	72
75	TC	60.1	66.7	72.4	62.2	68.5	74.2	64.2	70.0	75.6	67.5	72.1	77.5
	SHC	52.7	44.6	35.6	57.7	47.9	37.5	62.1	51.1	39.3	67.5	56.8	42.6
	kW	4.63	4.69	4.75	4.67	4.71	4.78	4.68	4.73	4.80	4.70	4.75	4.84
85	TC	56.9	63.3	69.4	58.8	65.4	71.1	60.5	66.9	72.4	64.7	68.8	74.1
	SHC	51.3	43.2	34.6	55.9	46.7	36.5	60.5	50.1	38.3	64.7	56.0	41.5
	kW	5.06	5.17	5.21	5.10	5.17	5.23	5.14	5.18	5.26	5.17	5.21	5.29
95	TC	53.7	59.9	66.2	55.5	61.9	67.7	57.6	63.2	68.9	61.8	65.1	70.6
	SHC	49.8	41.7	33.4	54.3	45.3	35.3	57.6	48.7	37.1	61.8	54.9	40.5
	kW	5.54	5.68	5.72	5.58	5.68	5.74	5.64	5.69	5.76	5.68	5.71	5.79
105	TC	48.1	54.2	60.0	50.1	55.8	61.4	52.6	56.9	62.4	56.2	58.6	63.8
	SHC	46.3	38.7	30.7	50.1	42.1	32.7	52.6	45.3	34.4	56.2	51.4	37.6
	kW	6.17	6.35	6.39	6.23	6.36	6.41	6.30	6.37	6.42	6.36	6.38	6.44
115	TC	44.2	50.0	55.5	46.8	51.3	56.7	49.1	52.4	57.6	52.4	53.9	58.8
	SHC	44.2	36.9	29.0	46.8	40.1	30.8	49.1	43.4	32.6	52.4	49.2	36.0
	kW	6.75	6.94	6.98	6.83	6.95	6.99	6.82	6.95	7.01	6.94	6.95	7.03
125	TC	40.9	45.5	50.6	43.4	46.8	51.7	45.4	47.7	52.3	48.3	49.0	53.3
	SHC	40.9	34.9	27.0	43.4	38.2	28.9	45.4	41.3	30.4	48.3	46.7	33.6
	kW	7.36	7.64	7.67	7.58	7.64	7.68	7.63	7.64	7.69	7.64	7.65	7.71

See Legend and Notes on page 16.

WET COIL AIR DELIVERY* — HORIZONTAL AND DOWNFLOW DISCHARGE

Unit 583B024-060 (Deduct 10% for 208 Volts)

230 AND 460 VOLT												
Unit 583B	Motor Speed		External Static Pressure (in. wg)									
			0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
024	Low	Watts	279	282	280	277	276	—	—	—	—	—	—
		CFM	882	801	738	674	604	—	—	—	—	—	—
	Med	Watts	—	—	—	373	367	361	356	351	—	—	—
		CFM	—	—	—	936	868	797	719	626	—	—	—
	High	Watts	—	—	—	—	—	463	452	439	428	—	—
		CFM	—	—	—	—	—	956	878	794	702	—	—
030	Low	Watts	243	244	242	—	—	—	—	—	—	—	—
		CFM	885	842	786	—	—	—	—	—	—	—	—
	Med	Watts	353	339	333	330	326	320	—	—	—	—	—
		CFM	1195	1134	1070	997	911	818	—	—	—	—	—
	High	Watts	—	—	—	443	436	426	416	406	397	—	—
		CFM	—	—	—	1230	1145	1061	977	888	786	—	—
036	Low	Watts	490	463	446	432	418	403	389	378	—	—	—
		CFM	1431	1398	1347	1281	1205	1118	1024	921	—	—	—
	Med	Watts	—	513	501	488	474	459	443	428	—	—	—
		CFM	—	1491	1426	1351	1267	1175	1077	976	—	—	—
	High	Watts	—	—	645	636	627	616	605	593	583	—	—
		CFM	—	—	1484	1410	1330	1243	1147	1044	936	—	—
042	Low	Watts	634	618	608	598	583	562	534	502	473	454	457
		CFM	1669	1599	1545	1498	1448	1391	1326	1257	1189	1132	1101
	Med	Watts	—	—	—	733	704	672	638	604	574	550	536
		CFM	—	—	—	1746	1688	1630	1566	1492	1399	1279	1120
	High	Watts	—	—	—	—	—	—	797	773	751	727	696
		CFM	—	—	—	—	—	—	1727	1632	1537	1423	1308
048	Low	Watts	591	578	573	568	559	544	524	500	—	—	—
		CFM	1554	1523	1496	1467	1432	1387	1332	1269	—	—	—
	Med	Watts	755	737	719	699	678	653	627	602	579	562	556
		CFM	1834	1802	1758	1706	1648	1585	1520	1455	1392	1332	1276
	High	Watts	—	—	—	890	858	828	801	777	756	734	709
		CFM	—	—	—	1943	1870	1793	1711	1624	1531	1433	1329
060	Low	Watts	589	576	569	566	559	541	499	—	—	—	—
		CFM	1946	1891	1836	1779	1718	1651	1577	—	—	—	—
	Med	Watts	750	733	715	695	673	648	623	598	577	—	—
		CFM	2189	2097	2021	1952	1883	1809	1727	1635	1530	—	—
	High	Watts	—	879	850	821	795	772	750	728	701	—	—
		CFM	—	2337	2159	2050	1974	1905	1824	1722	1597	—	—

*Air delivery values are without air filter.

NOTE: Deduct field-supplied air filter pressure drop to obtain external static pressure available for ducting.

LEGEND

BF – Bypass Factor
Ewb – Entering Wet-Bulb
kW – Total Unit Power Input
SHC – Gross Sensible Heat Capacity (1000 Btuh)
TC – Gross Cooling Capacity (1000 Btuh)

NOTES:
1. Ratings are gross; they do not account for the effects of the evaporator-fan motor power and heat.
2. Direct interpolation is permissible. Do not extrapolate.
3. The following formulas may be used:

$$t_{ldb} = t_{edb} - \frac{\text{sensible capacity (Btuh)}}{1.10 \times \text{cfm}}$$

t_{lwb} = Wet-bulb temperature corresponding to enthalpy of air leaving evaporator coil (h_{lwb})

$$h_{lwb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$

Where: h_{ewb} = Enthalpy of air entering evaporator coil

4. Determine Net Cooling Capacity using the following formula:
   Net Capacity = Gross Cooling Capacity – Indoor Fan Motor Heat
   Indoor Fan Motor Heat is determined by the following formula:
   Indoor Fan Motor Heat = Indoor Fan Motor Watts x (3,413 Btuh/Watts)
   The Indoor Fan Motor Watts are determined from the Wet Coil Air Delivery table depending on the desired CFM and speed setting.

PERFORMANCE DATA (CONT)

ECONOMIZER/1-IN. FILTER PRESSURE DROP (in. wg)

UNIT 583B	PRESSURE DROP
024-036	0.20
042-060	0.25

OUTDOOR SOUND: OCTAVE BAND DATA — DECIBELS (Lw(A))

UNIT	583B					
Frequency (Hz)	**024**	**030**	**036**	**042**	**048**	**060**
63	44.8	48.0	50.0	49.1	51.4	53.7
125	60.4	58.2	60.4	63.9	65.2	62.6
250	58.3	59.2	61.6	65.2	69.7	65.9
500	64.8	65.8	66.9	67.9	72.7	70.6
1000	66.9	67.7	67.8	66.7	72.9	71.6
2000	64.3	64.8	64.6	63.8	69.8	68.2
4000	59.8	61.8	60.7	60.2	65.8	65.8
8000	51.8	53.6	52.8	50.7	57.9	58.3

Bels — Sound Levels (1 bel = 10 decibels)

HIGH ALTITUDE COMPENSATION

NATURAL GAS ONLY

ORIFICE CONVERSION — 3.5 in. wg MANIFOLD PRESSURE*

ALTITUDE (ft)	INPUT (Btuh)	OUTPUT (Btuh)	ORIFICE NUMBER†
0-2000	40,000	31,000	#44
	60,000	46,000	#38
	90,000	70,000	#38
	115,000	92,000	#33
	130,000	103,000	#31
2001-4500	33,290	25,800	#49
	49,930	38,300	#43
	74,900	58,270	#43
	95,700	76,560	#38
	108,180	85,680	#36
4501-6000	31,310	24,270	#50
	46,970	36,030	#44
	70,450	54,810	#44
	90,020	71,300	#40
	101,760	80,590	#37

*As the height above sea level increases, there is less oxygen per cubic ft of air. Therefore heat input rate should be reduced at higher altitudes.

†Orifices available through your Bryant distributor.

LIQUID PROPANE ONLY

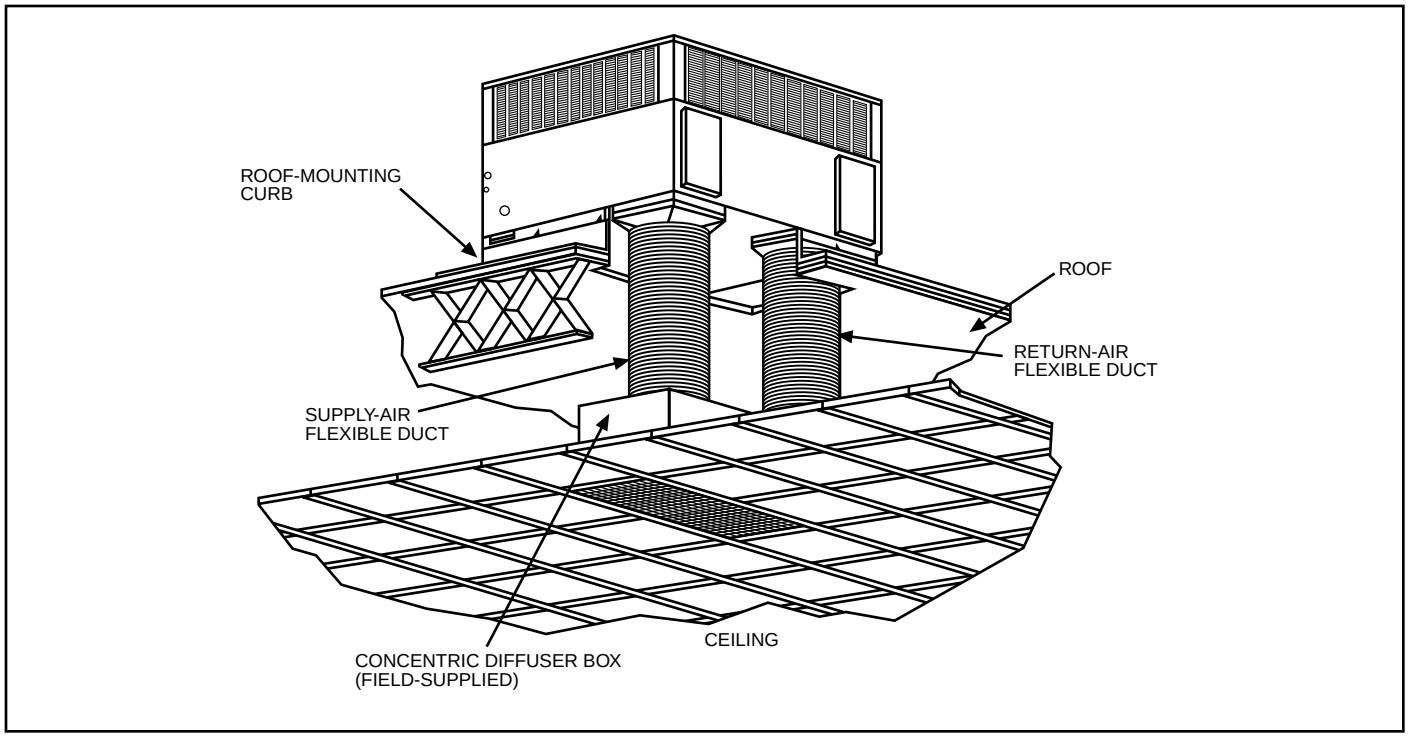
ORIFICE CONVERSION — 3.5 in. wg MANIFOLD PRESSURE*

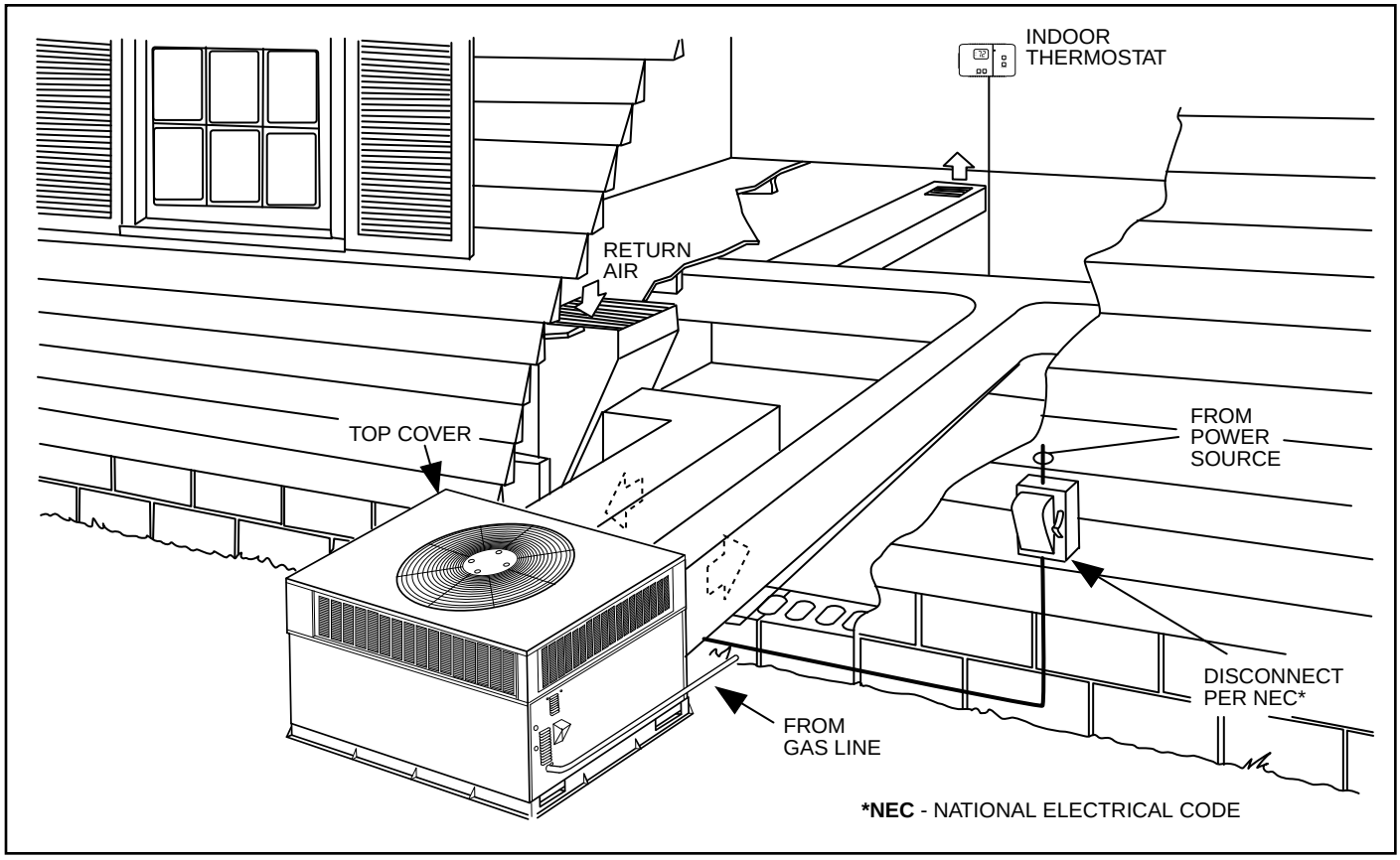
ALTITUDE (ft)	INPUT (Btuh)	OUTPUT (Btuh)	ORIFICE NUMBER†
0-2000	40,000	31,000	#50
	57,000	43,720	#46
	85,500	66,520	#46
	115,000	92,000	#42
	127,000	100,580	#41
2001-4500	33,290	25,800	#53
	47,430	36,380	#50
	71,150	55,350	#50
	95,700	76,560	#45
	105,690	83,710	#44
4501-6000	31,310	24,270	NOT TO BE USED ABOVE 4500 FT
	44,620	34,220	#51
	66,930	52,070	#51
	90,020	72,020	#47
	99,140	78,520	#45

*As the height above sea level increases, there is less oxygen per cubic ft of air. Therefore, heat input rate should be reduced at higher altitudes.

†Orifices available through your Bryant distributor.

TYPICAL PIPING AND WIRING





APPLICATION DATA

Condensate trap — A 2-in. condensate trap must be field supplied.

Ductwork — Secure downflow discharge ductwork to roof curb. For horizontal discharge applications, attach ductwork to unit with flanges.

To convert a unit to downflow discharge — Units are equipped with factory-installed inserts in the down-flow openings. Removal of the inserts is similar to removing an electrical knock-out. The unit is factory equipped with duct covers to seal the horizontal discharge openings in the unit. Units installed in horizontal discharge orientation do not require duct covers.

Airflow — Units are draw-thru in the Cooling mode and blow-thru in the Heating mode.

Maximum cooling airflow — To minimize the possibility of condensate blow-off from the evaporator, airflow through the units should not exceed 450 cfm per ton.

Minimum cooling airflow — The minimum cooling airflow is 350 cfm per ton.

Minimum ambient operating temperature — All standard units have a minimum ambient operating temperature of 40°F. With accessory low ambient temperature kit, units can operate at temperatures down to 0°F.

ELECTRICAL DATA

UNIT SIZE 583B	V-PH-Hz	VOLTAGE RANGE		COMPRESSOR		OUTDOOR FAN MOTOR	INDOOR FAN MOTOR	POWER SUPPLY FUSE	
		Min	Max	RLA	LRA	FLA	FLA	MCA	MOCP*
024	208/230-1-60	187	253	13.5	61.0	0.8	2.0	19.7	30
030	208/230-1-60	187	253	14.7	73.0	0.8	2.1	21.3	35
	208/230-3-60	187	253	9.6	63.0	0.8	2.1	14.9	20
036	208/230-1-60	187	253	15.4	83.0	0.8	3.6	23.7	35
	208/230-3-60	187	253	12.2	77.0	0.8	3.6	19.7	30
	460-3-60	414	506	5.1	35.0	0.8	1.9	9.1	15
042	208/230-1-60	187	253	18.6	105.0	1.6	4.1	29.0	45
	208/230-3-60	187	253	13.8	88.0	1.6	4.1	23.0	35
	460-3-60	414	506	6.3	39.0	0.9	2.0	10.8	15
048	208/230-1-60	187	253	20.5	109.0	1.6	4.1	31.3	50
	208/230-3-60	187	253	14.7	91.0	1.6	4.1	24.1	35
	460-3-60	414	506	6.5	46.0	0.9	2.0	11.0	15
060	208/230-1-60	187	253	27.6	158.0	1.6	6.2	42.3	60
	208/230-3-60	187	253	18.1	137.0	1.6	6.2	30.4	45
	460-3-60	414	506	9.0	62.0	0.9	3.2	15.4	20

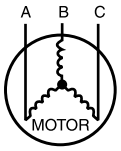
LEGEND

FLA — Full Load Amps
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection
RLA — Rated Load Amps

NOTES:
1. In compliance with NEC (National Electrical Code) requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be Power Supply fuse. The CGA (Canadian Gas Association) units may be fuse or circuit breaker.
2. Minimum wire size is based on 60 C copper wire. If other than 60 C wire is used, or if length exceeds wire length in table, determine size from NEC.
3. Unbalanced 3-Phase Supply Voltage
   Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percentage of voltage imbalance.

   % Voltage imbalance

   $$= 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$



AB = 452 v
BC = 464 v
AC = 455 v

$$\text{Average Voltage} = \frac{452 + 464 + 455}{3}$$

$$= \frac{1371}{3}$$

$$= 457$$

Determine maximum deviation from average voltage.
(AB) 457 452 = 5 v
(BC) 464 457 = 7 v
(AC) 457 455 = 2 v

Maximum deviation is 7 v.

Determine percent of voltage imbalance.

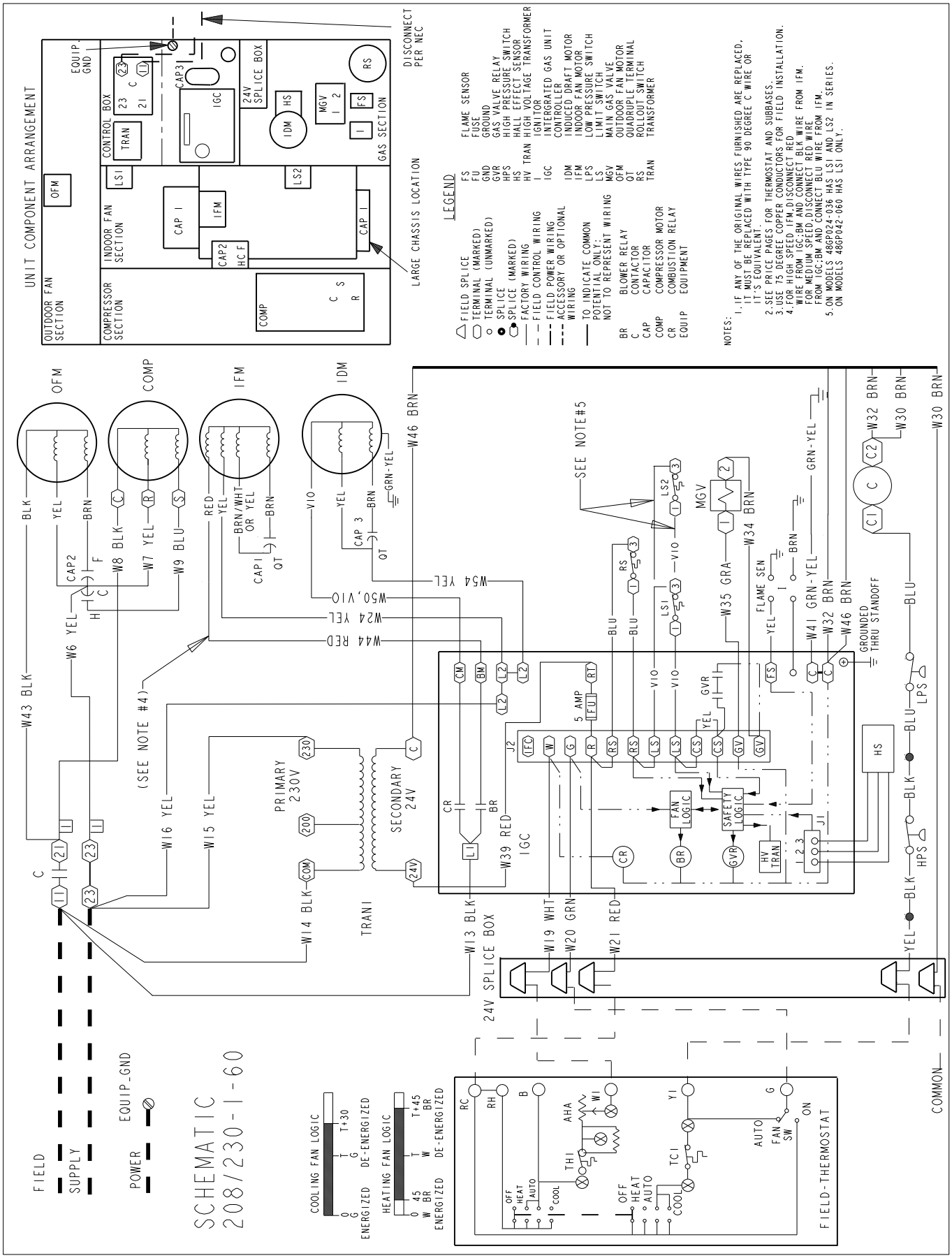
$$\% \text{ Voltage Imbalance} = 100 \times \frac{7}{457}$$

$$= 1.53\%$$

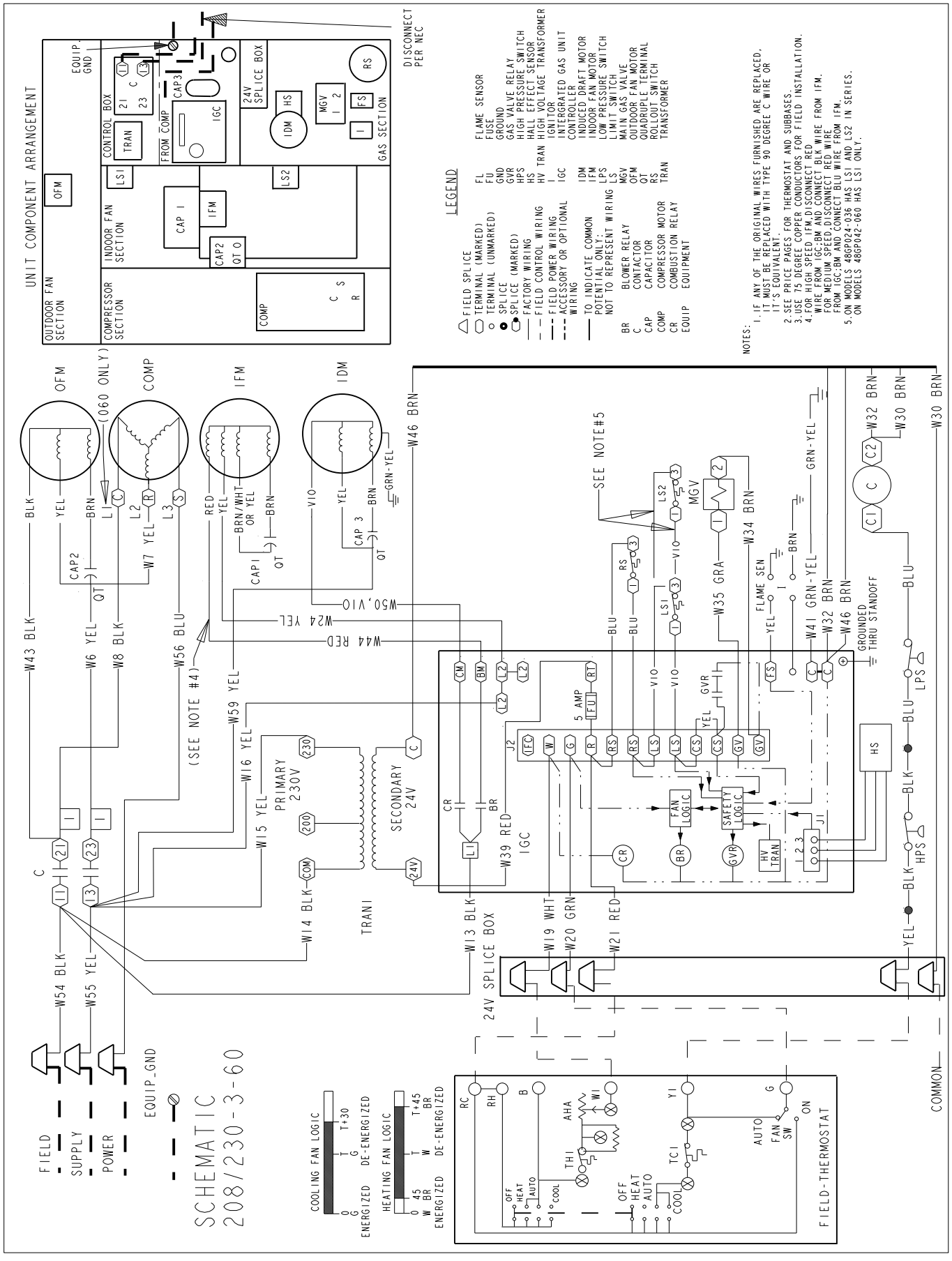
This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

IMPORTANT: If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.

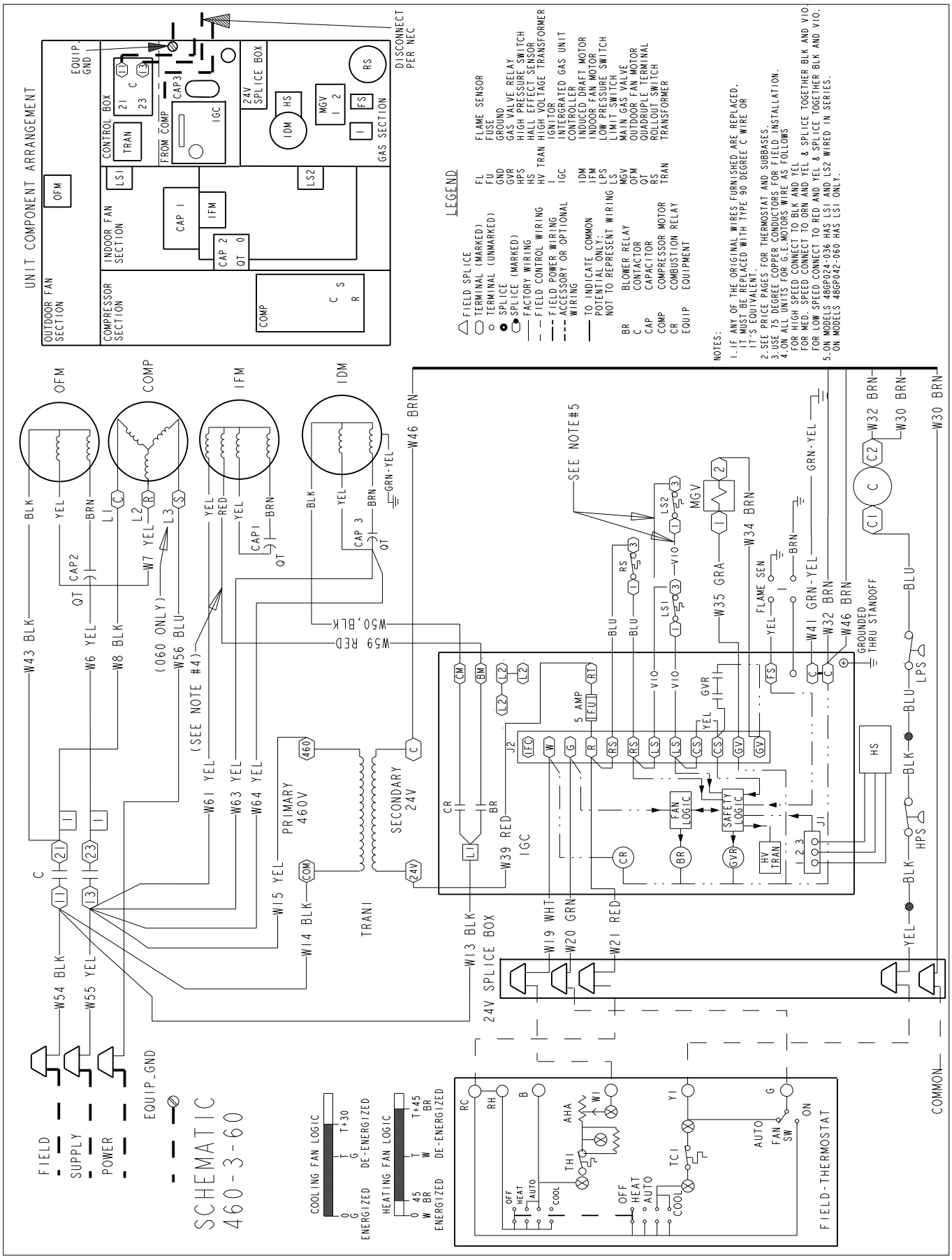
TYPICAL WIRING SCHEMATIC—208/230-1-60 SHOWN



TYPICAL WIRING SCHEMATIC—208/230-3-60 SHOWN



TYPICAL WIRING SCHEMATIC—460-3-60 SHOWN



CONTROLS

OPERATING SEQUENCE

Heating — On a call for heating, terminal “W” of the thermostat is energized, starting the induced-draft motor. When the hall-effect sensor on the induced-draft motor senses that it has reached the required speed, the burner sequence begins. This function is performed by the integrated gas control (IGC). The evaporator fan motor is energized 45 seconds after flame is established. When the thermostat is satisfied and “W” is de-energized, the burners stop firing and the evaporator fan motor shuts off after a 45-second time-off delay.

Cooling — When the room temperature rises to a point that is slightly above the cooling control setting of the thermostat, the thermostat completes the circuit between thermostat terminal R to terminals Y and G. These completed circuits through the thermostat connect contactor coil (C) (through unit wire Y) and blower relay coil (BR) (through unit wire G) across the 24-v secondary of transformer (TRAN).

The normally open contacts of energized contactor (C) close and complete the circuit through compressor motor (COMP) to condenser (outdoor) fan motor (OFM). Both motors start instantly.

The set of normally open contacts of energized relay BR close and complete the circuit through evaporator blower (indoor) fan motor (IFM).

NOTE: Once the compressor has started and then has stopped, it should not be started again until 5 minutes have elapsed.

The cooling cycle remains “on” until the room temperature drops to a point that is slightly below the cooling control setting of the room thermostat. At this point, the thermostat “breaks” the circuit between thermostat terminal R to terminals Y and G. These open circuits de-energize contactor coil C and relay coil BR. The condenser and compressor motors stop. After a 30-second delay, the blower motor stops. The unit is in a “standby” condition, waiting for the next “call for cooling” from the room thermostat.

GUIDE SPECIFICATIONS

PACKAGED GAS HEATING/ELECTRIC COOLING UNITS CONSTANT VOLUME APPLICATION

HVAC GUIDE SPECIFICATIONS

SIZE RANGE: 2 TO 5 TONS, NOMINAL COOLING
40,000 TO 130,000 BTUH,
NOMINAL HEATING INPUT

BRYANT MODEL NUMBER: 583B

PART 1 — GENERAL

1.01 SYSTEM DESCRIPTION

Outdoor rooftop mounted, gas heating/electric cooling unit utilizing a scroll compressor for cooling duty. Unit shall discharge supply air vertically or horizontally as shown on contract drawings. Condenser fan/coil section shall have a draw-thru design with vertical discharge for minimum sound levels.

1.02 QUALITY ASSURANCE

A. Unit shall be rated in accordance with ARI Standards 210/240-94 and 270-95.
B. Unit shall be designed in accordance with UL Standard 1995.
C. Unit shall be manufactured in a facility registered to ISO 9001 manufacturing quality standard.
D. Unit shall be UL listed and certified under Canadian Standards as a total package for safety requirements.
E. Roof curb shall be designed to conform to NRCA Standards.
F. Insulation and adhesives shall meet NFPA 90A requirements for flame spread and smoke generation.
G. Cabinet insulation shall meet ASHRAE Standard 62P.

1.03 DELIVERY, STORAGE AND HANDLING

Unit shall be stored and handled per manufacturer's recommendations.

PART 2 — PRODUCTS

2.01 EQUIPMENT

A. General:

Factory-assembled, single-piece, heating and cooling unit. Contained within the enclosure shall be all factory wiring, piping, controls, refrigerant charge with R-410A refrigerant, and special features required prior to field start-up.

B. Unit Cabinet:

1. Unit Cabinet shall be constructed of phosphated, zinc-coated, pre-painted steel capable of with-standing 500 hours in salt spray.
2. Normal service shall be through a single removable cabinet panel.
3. The unit shall be constructed on a rust proof basepan that has an externally trapped, integrated sloped drain pan.
4. Evaporator fan compartment top surface shall be insulated with a minimum 1/2-in. thick, flexible fiberglass insulation, coated on the air side and retained by adhesive and mechanical means. The evaporator wall sections will be insulated with a minimum semi-rigid foil-faced board capable of being wiped clean. Aluminum foil-faced fiberglass insulation shall be used in the entire indoor air cavity section.
5. Unit shall have a field-supplied condensate trap.

C. Fans:

1. The evaporator fan shall be 3-speed, direct-drive, as shown on equipment drawings.
2. Fan wheel shall be made from steel, and shall be double-inlet type with forward curved blades with corrosion resistant finish. Fan whell shall be dynamically balanced.
3. Condenser fan shall be direct drive propeller type with aluminum blades riveted to corrosion resistant steel spiders, be dynamically balanced, and discharge air vertically.

D. Compressor:

1. Fully hermetic compressors with factory-installed vibration isolation.
2. Scroll compressors shall be standard on all units.

E. Coils:

Evaporator and condenser coils shall have aluminum plate fins mechanically bonded to seamless copper tubes with all joints brazed. (Copper/copper and vinyl-coated construction available as option). Tube sheet openings shall be belled to prevent tube wear.

F. Heating Section:

1. Induced-draft combustion type with energy saving direct spark ignition system and redundant main gas valve.
2. Induced-draft motors shall be provided with solid-state hall-effect sensor to ensure adequate airflow for combustion.
3. The heat exchangers shall be constructed of aluminized steel for corrosion resistance.
4. Burners shall be of the in-shot type constructed of aluminum coated steel.
5. All gas piping and electric power shall enter the unit cabinet at a single location.

G. Refrigerant Components:

Refrigerant components shall be of the TXV (thermostatic expansion valve) type.

H. Filters:

Filter section shall consist of field-installed, throwaway, 1-in. thick fiberglass filters of commercially available sizes.

I. Controls and Safeties:

1. Unit controls shall be complete with a self-contained low voltage control circuit.
2. Compressors shall incorporate a solid-state compressor protector that provides reset capability.
3. Unit shall provide high and loss-of-charge/low pressure safety protection.

J. Operating Characteristics:

1. Unit shall be capable of starting and running at 125°F ambient outdoor temperature exceeding maximum load criteria of ARI Standard 210.
2. Compressor with standard controls shall be capable of operation down to 40 F ambient outdoor temperature.
3. Units shall be provided with fan time delay to prevent cold air delivery before the heat exchanger warms up.
4. Unit shall be provided with 30-second fan time delay after the thermostat is satisfied.

K. Electrical Requirements:
All unit power wiring shall enter the unit cabinet at a single location.

L. Motors:
1. Compressor motors shall be of the refrigerant-cooled type with line-break thermal and current overload protection.
2. All fan motors shall have permanently lubricated bearings, and inherent, automatic reset, thermal overload protection.
3. Condenser fan motor shall be totally enclosed.

M. Grille:
1. Louvered Grille:
Louvered grille shall be factory-installed to provide hail guard and vandalism protection.

N. Duct Conversion Kit:
Shall enable conversion of a factory supplied side discharge unit to downflow discharge airflow unit.

O. Special Features:
1. Coil Options:
Shall include factory-installed optional copper/copper and vinyl-coated refrigerant coils.
2. Economizer:
a. Economizer controls capable of providing free cooling using outside air.
b. Equipped with low leakage dampers not to exceed 3% leakage, at 1.0 in. wg pressure differential.
c. Spring return motor shuts off outdoor damper on power failure.
3. Flat Roof Curb:
Curbs shall have seal strip and a wood nailer for flashing and shall be installed per manufacturer's instructions.
4. Manual Outdoor Air Damper:
Package shall consist of damper, birdscreen, and rainhood which can be preset to admit outdoor air for year-round ventilation.
5. Thermostat:
To provide for one-stage heating and cooling in addition manual or automatic changeover and indoor fan control.
6. Natural-to-Propane Conversion Kit:
Shall be complete with all required hardware to convert to liquid propane (LP) operation at 3.5 in. wg manifold pressure.
7. Low Ambient Package:
Shall consist of a solid-state control and condenser coil temperature sensor for controlling condenser-fan motor operation, which shall allow unit to operate down to 0° F outdoor ambient temperature.
8. Filter Rack Kit:
Shall provide filter mounting for downflow applications.
9. Square-To-Round Duct Transitions:
Shall have the ability to convert the supply and return openings from rectangular to round.
10. Compressor Protection:
Solid-state control shall protect compressor by preventing "short cycling."
11. Crankcase Heater:
Shall provide anti-floodback protection for low-load cooling applications.
12. High Altitude Kit:
Shall consist of natural gas orifices to compensate for gas heat operation at 2001 to 6000 ft above sea level.
13. Low NO_x:
Shall provide NO_x reduction to values below 40 nanograms/joule to meet California emission requirements.
14. Compressor Hard Start Kit:
Shall provide additional starting torque for single-phase compressors.

bryant®
Heating & Cooling Systems

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

UNIT MUST BE INSTALLED IN ACCORDANCE WITH INSTALLATION INSTRUCTIONS

Cancels: New

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